CLAIMS

1. A method of delivering a packet from a first device in a first piconet of a scatternet to a destination device in a second piconet of the scatternet

5 comprising:

creating a direct radio communications link between the first device and the destination device; and

transmitting the packet via the direct radio communications link.

10 2. A method as claimed in claim 1, wherein the destination device is joined to the first piconet.

3. A method as claimed in claim 1 or 2, wherein the step of creating a direct radio communications link creates a third piconet between the first piconet

15 and the second piconet.

4. A method as claimed in claim 3, wherein the first device operates as Master of the third piconet.

20 5. A method as claimed in claim 1, 2, 3 or 4 wherein the scatternet has a topology defined at initiation of the scatternet and creating the direct radio communications link adjusts the topology of the scatternet.

6. A method as claimed in claim 4, wherein the direct radio communications

25 link creates a short-circuit in the network topology.

7. A method as claimed in any preceding claim wherein a piconet is a star-topology low power radio frequency network comprising a Master as a central node and one or more Slaves as dependent nodes, each of which has a radio

30 communications link to the Master, and a scatternet is a distributed low power radio frequency network comprising a plurality of piconets that are interconnected by radio communication links.

8. A method as claimed in any preceding claim, wherein the first device and/or the destination device are mobile.

5 9. A method as claimed in any preceding claim further comprising: determining whether the creation of a direct radio communications link between the first device and the destination device is possible.

10. A method as claimed in claim 9, wherein the packet comprises an address

10 of the destination device and the step of determining uses the identity of the destination device.

11. A method as claimed in claim 10, wherein the step of determining comprises determining if the destination device is within radio communication

15 range of the first device.

12. A method as claimed in claim 9, wherein the first device maintains a list of devices within radio communication range.

20 13. A method as claimed in claim 12, wherein the list comprises, for each device within communication range, an address and a clock offset.

14. A method as claimed in 12 or 13, wherein the list is maintained using the Bluetooth Inquiry procedure.

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15. A method as claimed in claim 12, 13 or 14, wherein the step of determining comprises the first device determining whether the destination device is included in the list.

30 16. A method as claimed in claim 15, wherein the comparison occurs within the Bluetooth Link layer.

17. A method as claimed in any preceding claim, wherein the direct radio communications link is temporary.

18. A method as claimed in claim 17, wherein the direct radio communications link is released after a predetermined period of inactivity.

19. A method as claimed in any preceding claim, wherein the packet is a routing request.

20. A method of delivering a packet from a first device in a first star-topology sub-network of a distributed low power radio frequency network to a destination device in a second star-topology sub-network of the distributed network comprising:
creating a direct low power radio frequency communications link between the first device and the destination device; and
transmitting the packet via the direct low power radio frequency communications link.

21. A carrier embodying a computer program which when loaded into a processor enables a method as claimed in any one of claims 1 to 20.

22. A device for participating in a first piconet of a scatternet and for delivering a packet to a destination device in a second piconet of the scatternet comprising:
means for creating a new direct radio communications link to the destination device while maintaining an existing direct radio communications link within the first piconet; and
a radio transmitter for transmitting the packet via the new direct communications link.

23. A method of delivering a packet from a first device in a first piconet of a scatternet to a destination device in a second piconet of the scatternet comprising:

receiving the packet at the first device;

5   determining whether the creation of a direct radio communications link between the first device and the destination device is possible; and

if it is not possible, forwarding the packet within the scatternet.

24. A method as claimed in claim 23, further comprising adding an address of
10   the first device to the packet before forwarding it.

25. A method as claimed in claim 23 or 24, wherein the received packet is transferred from a network layer to a link layer and, if possible, the link layer creates a direct radio communications link with the destination device and, if
15   not possible, the link layer forwards the received packet.

26. A method as claimed in claim 23 or 24, wherein the received packet is buffered in a network layer and a notification comprising the address of the destination device is transferred to a link layer and, if possible, the link layer
20   creates a direct radio communications link with the destination device and, if not possible, replies to the network layer which transfers the received packet to the link layer for forwarding.

27. A method as claimed in claim 23, wherein the method further comprises, if
25   the creation of a direct radio communications link between the first device and the destination device is possible, creating a direct radio communications link between the first device and the destination device.

28. A method as claimed in claim 23, wherein the received packet is a route
30   request packet and the method further comprises, if the creation of a direct radio communications link between the first device and the destination device

is possible, transmitting a reply packet to a source of the received route request packet.

29. A method of determining a route from a source device in a first piconet of a scatternet to a destination device in a second piconet of that scatternet comprising, before generating a routing request, determining, at the source device, whether the creation of a direct radio communications link between the source device and the destination device is possible; and if it is not possible, generating, at the source device, a routing request for forwarding within the scatternet.

30. A method as claimed in claim 29, wherein the method further comprises, if the creation of a direct radio communications link between the first device and the destination device is possible, creating a direct radio communications link between the first device and the destination device.

31. A method of delivering a packet from a first device in a first piconet of a scatternet to a destination device in a second piconet of that scatternet comprising:
creating a third piconet between the first piconet and the second piconet; and transmitting the packet via the third piconet.

32. A method as claimed in claim 31, wherein the first device operates as Master of the third piconet.

33. A method as claimed in claim 31 or 32, wherein the step of creating a third piconet comprises creating a direct radio communications link between the first device and the destination device.

34. A method as claimed in claim 31, 32 or 33 wherein the scatternet has a topology defined at initiation of the scatternet and creating a third piconet aadjusts the topology of the scatternet.

35. A method as claimed in claim 31, wherein the third piconet creates a short-circuit in the network topology.

5   36. A method as claimed in any one of claims 31 to 35, wherein a piconet is a star-topology low power radio frequency network comprising a Master as a central node and one or more Slaves as dependent nodes, each of which has a radio communications link to the Master, and a scatternet is a distributed low power radio frequency network comprising a plurality of piconets that are

10   interconnected by radio communication links.